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# ARBOR DAY



RHODE ISLAND

MAY 10 • 1912







RHODE ISLAND EDUCATION CIRCULARS

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TWENTY-FIRST ANNUAL PROGRAM

FOR THE

OBSERVANCE OF ARBOR DAY IN  
THE SCHOOLS OF RHODE ISLAND

MAY 10, 1912



ISSUED BY

THE COMMISSIONER OF PUBLIC SCHOOLS

STATE OF RHODE ISLAND



None of our native trees displays its seeds more plainly than the ash

STATE OF RHODE ISLAND  
DEPARTMENT OF EDUCATION

COMMISSIONER'S ARBOR DAY MESSAGE

*To the Boys and Girls of Rhode Island Schools:*

In observing Arbor Day, in keeping the festival of the trees, in celebrating the coming of springtime, may you find an open door set before you leading to the truth, beauty and joy of God's out-of-doors. In the friendly comradeships of the school and in the fellowship of friendly trees, may Arbor Day come to you like a day-spring from on high, making all the earth seem glad. In the joy and peace of springtime, "the mountains and the hills shall break forth before you into singing, and all the trees of the field shall clap their hands."

"Everything is upward striving;  
'Tis as easy now for the heart to be true  
As for grass to be green or skies to be blue;  
'Tis the natural way of living."

In past years I have sent you many suggestions for the observance of Arbor Day, and each year I have purposed to send you in your annual program new and interesting things about trees. You are invited this year particularly, to learn about the seeds of trees, to make experiments in their germination, and when practicable to plant a tree garden. This suggestion is not intended to interfere with tree planting, care of trees and shrubs, tree walks, and other Arbor Day practices; but let us remember that all good fruit had its beginning long ago in the seed sown on good ground. One article in our "Nature Lover's Creed" of last year was: "I believe in the seeds of trees, and would gather and plant them, and I would care for the seedlings until they are ready to stand with their brothers in the forests and plains; then the wilderness and the dry land shall be glad and the desert shall rejoice."

The pupils of each school, holding their own exercises, may find inspiration in the thought that they are not alone in their effort to make some place more beautiful and that, in a common citizenship of the schools, they are united with a hundred thousand Rhode Island boys and girls, as in a grand festival, in celebrating the earth's beauty and goodness and in trying, by planting grove or garden, to make home or school, park or farm, more useful and beautiful. And may each one in this great company learn to know the trees, with all their freshness, beauty, serenity and friendliness.

Very sincerely yours,

*Walter E. Ranger*

Commissioner

## SUGGESTIVE PROGRAM

Theme for Arbor Day, 1912—The Seeds of Trees

CHORUS.	SCRIPTURE.	COMMISSIONER'S MESSAGE.	RECITATION.
CHORUS.	GROUP EXERCISE.	ESSAY—"A Tree Garden."	SONG.
THE TREES WE KNOW—short descriptions of tree friends by pupils.			
RESCITATIONS.	CHORUS.	GROUP EXERCISE—"The Seeds of Trees."	
CHORUS.	PLANTING EXERCISES.		

"For a solace rests on the paths of men  
 Whenever a tendril falls,  
 And the soul will rise to a higher plane  
 Wherever a straight tree calls "

To own a bit of ground, to scratch it with a hoe, to plant seeds and watch their renewal of life,—this is the commonest delight of the race, the most satisfactory thing one can do.

—WARNER

The farmer has the most sane and natural occupation, and ought to find life sweeter, if less highly seasoned, than any other. He alone, strictly speaking, has a home. How can a man take root and thrive without land? He writes his history upon his field. How many ties, how many resources, he has,—his friendships with his cattle, his team, his dogs, his trees, the satisfaction in his growing crops, in his improved fields; his intimacy with nature, with bird and beast, and with the quickening elemental forces; his coöperation with the cloud, the sun, the seasons, heat, wind, rain, frost! Nothing will take the various distempers which the city and artificial life breed out of a man like farming, like direct and loving contact with the soil. It draws out the poison. It humbles him, teaches him patience and reverence, and restores the proper tone to his system.

Blessed is he whose youth was passed upon a farm. Cling to the farm, make much of it, put yourself into it, bestow your heart and your brain upon it, so that it shall savor of you and radiate your virtue after your day's work is done.

—JOHN BURROUGHS

## ACKNOWLEDGMENT

Grateful acknowledgments are extended to instructors in the Rhode Island State College who have generously assisted in the making of this pamphlet. Prof. John Barlow has had the leading part, not only in preparing, but also in compiling material. The out-door pictures were made by Mr. A. E. Stene; the cover design by Miss Mabel DeWitt Eldred; and the illustrations of seeds and cones and an important article were contributed by Mr. Ernest K. Thomas.



## SCRIPTURAL TEXTS

I will multiply the fruit of the tree.  
 I will call for the corn and increase it.  
 And the trees of the field shall yield their fruit.  
 And by the river shall grow all trees for meat.  
 It shall bring forth new fruit according to his months.  
 The tree beareth her fruit, the fig tree and the vine yield their strength.  
 As the tree which the Lord hath planted.  
 I made me gardens and orchards and planted trees in them.  
 All manner of trees for fruit.  
 Then they saw every high hill and all the thick trees.

Let the earth be glad.  
 Let the little hills sing for joy together.  
 Let the fields exalt and all that is therein.  
 Then shall all the trees of the wood sing for joy.  
 The mountains and the hills shall break forth before you into singing.  
 And all the trees of the field shall clap their hands.

## PARABLE OF THE TREES

The trees went forth on a time to anoint a king over them; and they said unto the olive tree, reign thou over us.

But the olive tree said unto them, Should I leave my fatness, wherewith by me they honour God and man, and go to be promoted over the trees?

And the trees said to the fig tree, Come thou, and reign over us.

But the fig tree said unto them, Should I forsake my sweetness, and my good fruit, and go to be promoted over the trees?

Then said the trees unto the vine, Come thou, and reign over us.

And the vine said unto them, Should I leave my wine, which cheereth God and man, and go to be promoted over the trees?

Then said all the trees unto the bramble, Come thou, and reign over us.

And the bramble said unto the trees, If in truth ye anoint me king over you, then come and put your trust in my shadow: and if not, let fire come out of the bramble, and devour the cedars of Lebanon.

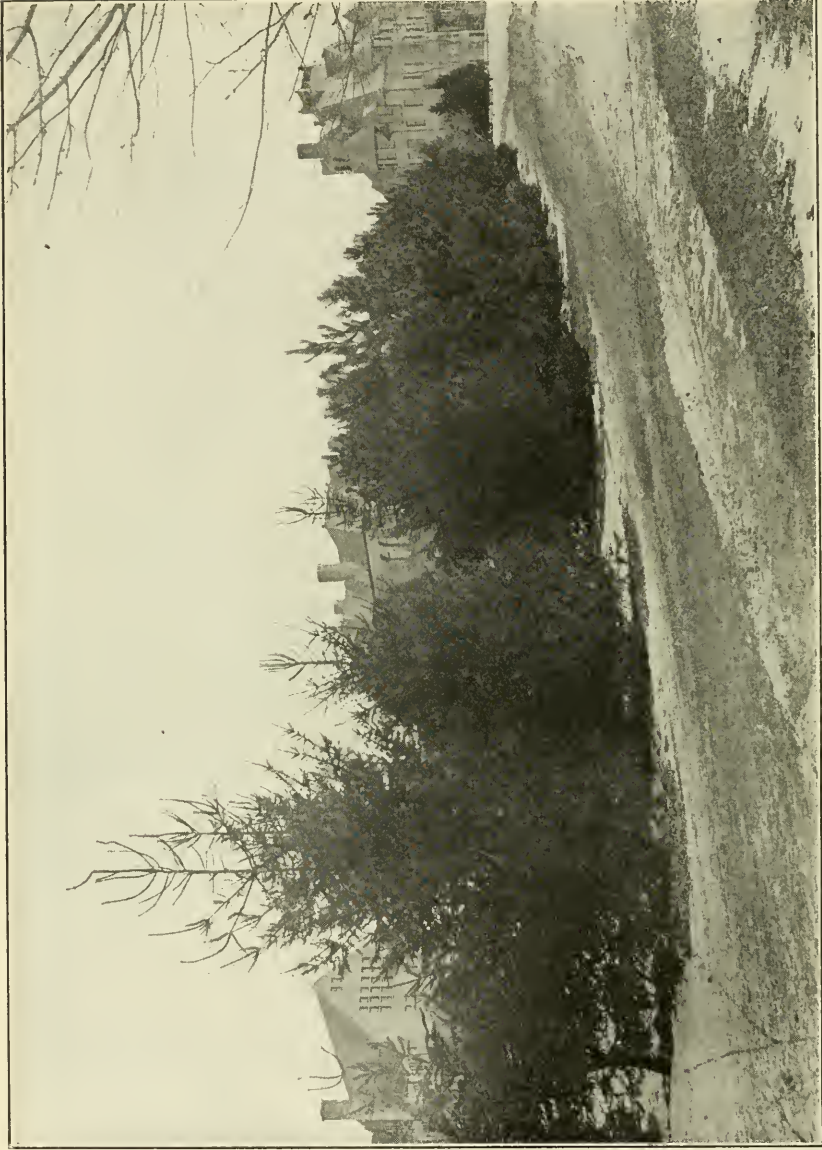
—JUDGES IX, 8-15.

## WE THANK THEE

For flowers that bloom about our feet;  
 For tender grass, so fresh, so sweet;  
 For song of bird, and hum of bee;  
 For all things fair we hear or see,  
     Father in Heaven, we thank Thee!

For blue of stream and blue of sky;  
 For pleasant shade of branches high;  
 For fragrant air and cooling breeze;  
 For beauty of the blooming trees,  
     Father in Heaven, we thank Thee!

—RALPH WALDO EMERSON



This row of evergreens shows the effective use of these trees for a border and screen upon the campus of the Rhode Island State College at Kingston

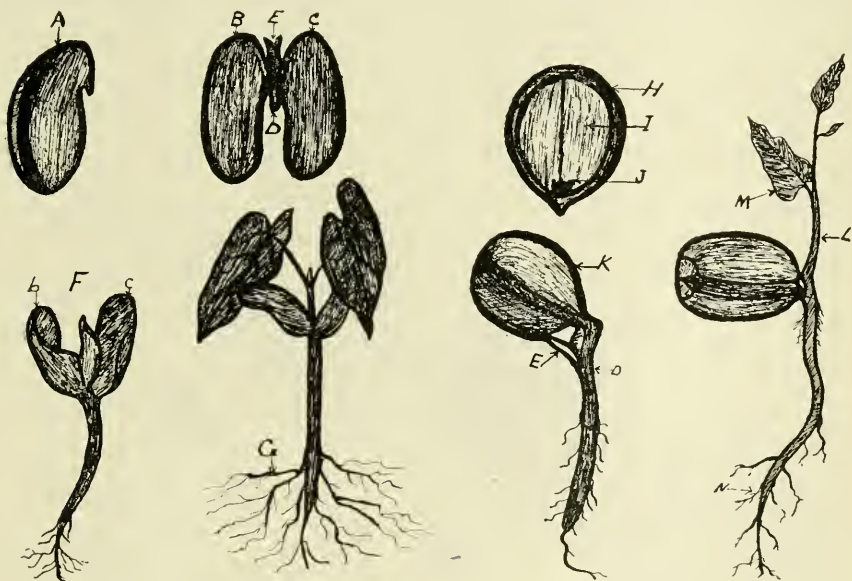
## THE SEEDS OF TREES

By PROFESSOR JOHN BARLOW, Rhode Island State College

The names of many trees can often be determined by the seeds. It is a good plan, therefore, to make a school collection of tree seeds. If a large quantity are collected in the fall some of them can be used for study. Select the larger kinds such as the chestnut and the acorn for this work.

Perhaps the best way to become familiar with the parts of a seed is to soak a bean in warm water for a few hours and then dissect it and learn the names of the parts.

Seeds differ a good deal in shape and in the way in which they germinate. Many interesting lessons can be taught during the long winter months by germinating seeds of various kinds in the schoolroom and observing their characteristics. Send for Farmers' Bulletin, No. 408, School Exercises in Plant Production, and consult any elementary botany for further information.



The Parts of a Bean Seed

The Parts of an Acorn

A represents the embryo of a bean with the outer coats removed after soaking in warm water for some time.

B and C are the cotyledons or seed leaves, opened along their flat surfaces by means of a pocket knife.

D is the "radicle" or primary root. Notice that it is the lower portion of a very short axis, the upper part of which is turned inwards between the cotyledons before they were opened. This upper part E, is the "plumule" or primary stem.

F shows a bean seedling germinating. The cotyledons or seed leaves b and c come up above the soil and when the plant has established itself they wither up and fall from the stem.

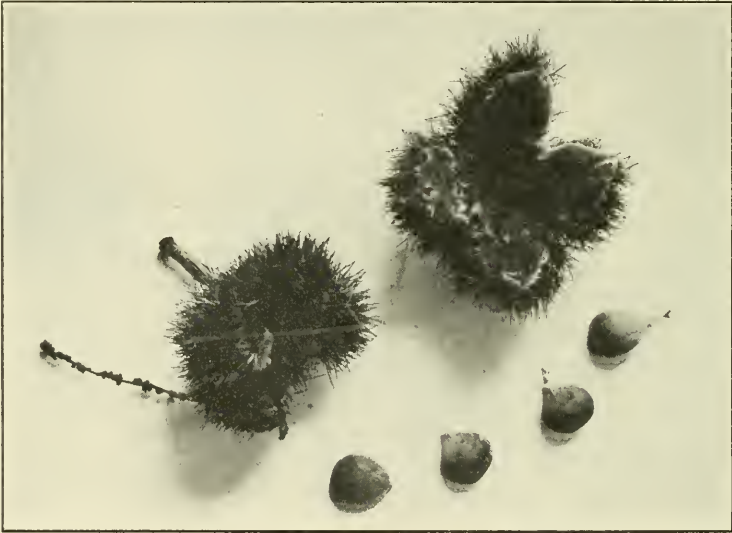
The cotyledons are stored with food which supports the young plant until germination is complete, and the seedling has developed a good root system (as shown in G), by means of which it can secure plant food from the soil.

H, represents an acorn cut through lengthwise, showing the outer coat; I, seed leaves or cotyledons; J, the radicle or primary root; K, the acorn germinating, E; the "plumule" or primary stem growing out of the top of D, the "radicle" or primary root; L, the young oak well established; M, leaves; N, roots.

### CHESTNUT

The seeds of this tree are too well known to require much description. Every country boy knows where to find these delicious nuts and when to hunt for them.

In the fall, after a sharp frost, and early in the morning is the time to hunt for chestnuts, for the frost opens the prickly burrs and loosens them from the trees; and unless one goes early the busy squirrels and chipmunks will gather all the nuts before he gets there.



Chestnuts and their Burrs

When the fruit is examined carefully it is seen that there are several nuts enclosed in a tough capsule or burr. The burr is thickly beset with hard sharp spines which protect the nuts within. The nuts are brown, taper to a slender point, and are covered upon the smaller end with a fine brown hair.

We have several varieties of foreign chestnuts in this country, but none of them has nuts of finer flavor than the small fruit of the native tree, although the introduced varieties are often larger.





Horse-Chestnuts with Spiny Burrs

## HORSE-CHESTNUT

The horse-chestnut is a shade tree planted generally through the state. It blossoms rather late in spring and when covered with the great masses of pink and white flowers is a very beautiful tree. The seeds ripen slowly through the summer and with the first frosts begin to rattle down. There are several seeds or nuts in each of the spiny pods which are flattened where they press against each other. When the nuts first come from the pods they are a beautiful glossy brown all over the surface except one round white eye spot. The nuts are not of any use, as they are very bitter. But they are just the right size for boys

to throw, and school boys usually have their pockets full of these handy missiles during the first few days after they begin to fall.

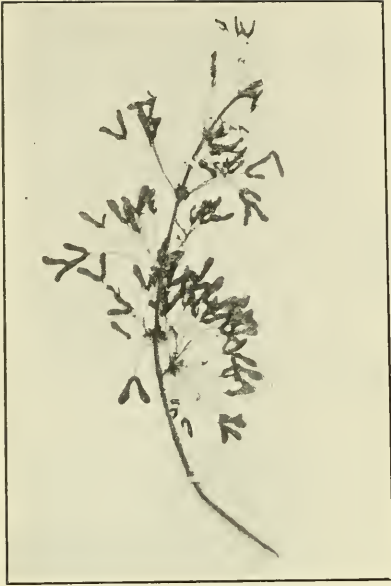
The *buckeye* is very much like the horse-chestnut. The pods or burrs are without spines, the flowers nearly white. This tree is much less common than the horse-chestnut.

## THE BEECH

This fine tree is not very common in Rhode Island, but where it occurs it is always a great favorite with children, for the seeds of this tree are very delicious food and much sought for, both by men and animals. The beechnut ripens late in the fall and two or three nuts are enclosed in a tough burr which spreads open and allows the nuts to fall. The nuts are small, three-sided, and quite hard.



Beechnuts



Cluster of Red Maple Seeds

## MAPLE

The seeds of the maple trees are familiar to every one, and are the most interesting in many ways of any of the tree seeds. They grow in pairs, each seed bearing a broad curved wing. These seeds are often called keys and in some places children call them knives and forks. The seeds of some maples like the red maple ripen early in the year, and fall to the ground where they germinate at once and before fall the little trees are well started in life, but most maples do not ripen seeds until late in the year and they lie on the ground through the winter.

## WALNUT

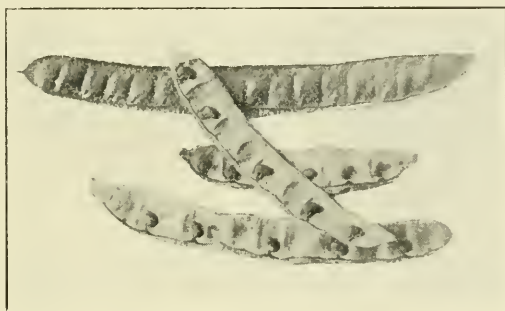
There are several varieties of hickories in this state, the two common varieties being the shagbark and the pignut. The fruit of the shagbark hickory is larger, sweeter, and has a thinner shell than the pignut. The fruit of the latter is somewhat bitter, small and thick shelled, and not very desirable to eat. Each nut as it grows is enclosed in a thick outer covering which splits into four parts when the fruit ripens and allows the nut to escape. Like the beechnut and chestnut, the walnut is a favorite food of the squirrels, and one often finds many shells which their sharp teeth have broken open.



Walnuts with Husks

## THE LOCUST

We have several trees that are given the name of locust. The one whose seed is shown here is the black locust, and must not be confused with the honey locust, a very different tree. In the early summer these trees are covered with long drooping clusters of white, very sweet sented flowers, which are very attractive to the bees. After the flowers wither, the little pods are found. At first they are very small and green in color and grow slowly through the summer until fully formed—only very late in the year. If we collect them at this time they appear like the picture here shown. The pods are about three or four inches long, and when ripe are dry and brown. When ready to fall from the tree the pods begin to split open and when they reach the ground most of them have split in two. These



Pods of the Locust

light dry pods are blown about by the wind and are often found a long distance from their parent tree. The seeds are about twelve or fourteen to each pod, dark brown, and very hard. They lie upon the ground until the next year when they germinate.

## THE HONEY LOCUST

The honey locust tree is found in many places through the state, where it has been planted for a shade tree. It is not a tree that any boy would try to climb; at least he would not try more than once, for the trunk is beset with long branched thorns that are very formidable. The blossoms of this tree appear in early summer and are pale green and not very noticable. The fruit, however, is very peculiar. It forms pods as the black locust does, but the pods are many times as large. Often they are a foot or more long and dark purple in color. These pods fall to the ground without splitting open and lie upon the ground until the next year. The seeds look like little brown beans and rattle about in the dry pod. The tree is called honey locust, because a sweetish substance is found inside the pod.

The spring comes back again; the fields rejoice;  
Carols of gladness ring from every tree.

—FRANCES ANNA KEMBLE



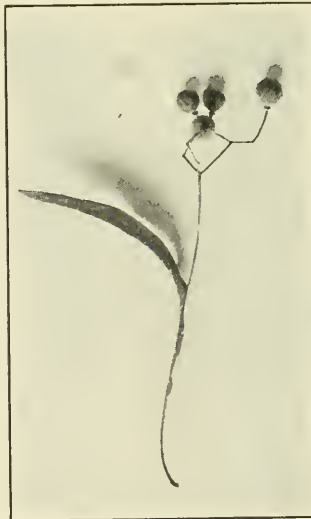
Catkins of the White Birch

## BIRCH

The seeds of the birch grow in catkins. They ripen late in the fall and begin to fall to the ground in November, some of them persisting on the trees until well into the winter. The birch seeds are very small and flat, each one bordered by a thin margin. They are supported by a series of three pointed scales, which are set free with the seeds and are often mistaken for the real seeds.

## LINDEN

This tree is commonly called basswood in many places. It is a fine tree, often set out for shade trees and from the blossoms, which appear in July, the bees gather great quantities of very fine honey. The seeds are very small round nuts, and are borne in clusters. On the base of the stem there is a leaf-like wing which persists and dries up as the fruit ripens, and when the seeds are ready to fall the whole cluster breaks free from the twig and is borne away by the wind. The seeds begin to drop from the trees in early fall, and before cold weather they are all gone. They lie upon the ground until the next season before they germinate.



Seeds of the Linden



## ASH

None of our trees displays its seeds more prominently than the ash. It blossoms early in the spring before the leaves appear, and the seeds are not mature until late in the year. After the leaves have fallen from the trees the seeds remain in clusters over the



Cluster of Ash Seeds

tree and are slowly beaten off by the winds of fall and winter. The tree shown in the frontispiece was photographed in November and the clusters of seeds are shown all over the tree. The seeds are small and spindle shaped and bear a broad slightly twisted wing. When the seed is blown from the tree, the one-sided wing causes the seed to whirl about in the air and it may thus be blown for a long distance.

One peculiarity of the ash is that only part of the trees bear seeds. The others are sterile. This is because the flowers which bear stamens are on one tree and those which have pistils are on others. Such trees are called dioecious.

## TREES I'LL PLANT

(Recitation for three children.)

## FIRST CHILD—

Because I love the robins well  
I'll plant a cherry tree,  
Then when farmers roughly scold  
They'll come and live with me.

## THIRD CHILD—

Because I love the shady spots  
That leafy limbs can make,  
A dozen trees I'll plant each year  
Just for their own sweet sake.

## SECOND CHILD—

Because I love the pretty squirrels,  
So frisky and so gay,  
I'll many nut trees plant around,  
Then they'll come near to play.

## TOGETHER—

Because we love the whole wide world,  
And every living thing,  
We'll plant, and bless, and keep the trees  
For all the good they bring.

—LETTIE STERLING

### THE SYCAMORE

The fruit of the sycamore is different in many ways from that of any other native tree. The seeds are collected in a dense ball or very short catkin. These balls hang by a slender stalk which contains long tough fibres so that the fruit swings in the wind. The stem is very tough and the seeds are not set free in the fall as most seeds are, but hang on through most of the winter, and these balls of seeds swinging in the heavy winds of winter give the sycamore trees a very peculiar appearance, and have led people in many places to call this the button-ball tree. Late in the winter the balls break to pieces and set free the little seeds, each one of which bears a tuft of yellow hair which serves as a float to carry it in the wind.



Seed Balls of the Sycamore



Acorns

### THE OAKS

The fruit of the oak is the familiar acorn. No fruit of native trees is so well known as this, and none is more interesting. The acorn proper is the brown, smooth cone shaped portion which is set in the rough scaly cup. While the different species of oaks have acorns which show slight differences in size and shape they are all so much alike that one is never in doubt as to what the acorn is.

Many animals are fond of acorns. Horses, swine and other domestic animals eat them greedily, and wild turkeys are said to feed upon them.

## CONES

Cones are the peculiar fruit of most of our evergreen trees, such as spruce, pine, hemlock and larch. When a cone is carefully examined it is found to consist of a central shaft or core upon which grows a number of hard scales. These scales each bear upon the inner face two naked seeds. The scales may be smooth and simple as in the spruce or may bear a sharp spine as in some pines. The cones of the larch are very small, while those of the Norway spruce are six inches in length.

When the cone is ripe the scales bend outward and allow the seeds to fall to the ground. Each seed bears a thin scale or wing which is so placed on the seed as to cause it to spin about while in the air.

In some parts of the country pine and spruce cones are collected in great quantities and the seeds extracted. The seeds are used to start young trees which are used in establishing new forests. Squirrels and some birds are fond of the seeds of spruce and pine and tear the cones to pieces to get them.



Cones of White and Pitch Pine; Cone of Norway Spruce and Seeds

## THREE TREES

The pine tree grew in the wood,  
 Tapering, straight, and high;  
 Stately and proud it stood,  
 Black-green against the sky.  
 Crowded so close, it sought the blue,  
 And ever upward it reached and grew.

The oak tree stood in the field,  
 Beneath it dozed the herds;  
 It gave to the mower a shield,  
 It gave a home to the birds.  
 Sturdy and broad, it guarded the farms,  
 With its brawny trunk and knotted arms.

The apple tree grew by the wall,  
 Ugly and crooked and black;  
 But it knew the gardener's call,  
 And the children rode on its back.  
 It scattered its blossoms upon the air,  
 It covered the ground with fruitage fair.

"Now, hey," said the pine, "for the wood!  
 Come live with the forest band.  
 Our comrades will do you good,  
 And tall and straight you will stand."  
 And he swung his boughs to a witching sound,  
 And flung his cones like coins around.

"Oho!" laughed the sturdy oak;  
 "The life of the field for me.  
 I weather the lightning stroke;  
 My branches are broad and free.  
 Grow straight and slim in the wood if you will,  
 Give me the sun and wind swept hill."

And the apple tree murmured low:  
 "I am neither straight nor strong;  
 Crooked my back doth grow  
 With bearing my burdens long."  
 And it dropped its fruit, as it dropped a tear,  
 And reddened the ground with fragrant cheer.

And the Lord of the harvest heard,  
 And he said: "I have use for all;  
 For the bough that shelters a bird,  
 For the beam that pillars a hall;  
 And grow they tall, or grow they ill,  
 They grow but to wait their Master's will.



So the ship of oak was sent  
 Far over the ocean blue;  
 And the pine was the mast that bent,  
 As over the waves it flew;  
 And the ruddy fruit of the apple tree  
 Was borne to a starving isle of the sea.

### ROBIN'S SECRET

'Tis the blithest, loveliest weather for a bird to flirt a feather,  
 For a bird to trill and warble, all his wee red breast a-swell.  
 I've a secret. You may listen till your blue eyes dance and glisten,  
 Little maiden, but I'll never, never, never, never tell.

You'll find no more wary piper, till the strawberries wax riper  
 In December than in June—aha! all up and down the dell,  
 Where my nest is set, for certain, with a pink and snowy curtain,  
 East or west, but which I'll never, never, never, never tell.

You may prick me with a thistle, if you ever hear me whistle  
 How my brooding mate, whose weariness my carols sweet dispel,  
 All between the clouds and clover, apple-blossoms drooping over,  
 Twitters low that I must never, never, never, never tell.

Oh! I swear no closer fellow ever stains his bill in cherries mellow;  
 Tra la la! and tirra lirra! I'm the jauntiest sentinel,  
 Perched beside my jewel casket, where lie hidden—don't you ask it,  
 For of those three eggs, I'll never, never, never, never tell.

Chirp! chirp! chirp! alack for pity! Who hath marred my merry ditty?  
 Who hath stirred the scented petals peeping in where robins dwell?  
 Oh my mate! May heaven defend her! Little maidens' hearts are tender,  
 And I never, never, never, never, *meant* to tell.

—KATHARINE LEE BATES

### SPRING

How bright the skies that dally  
 Along day's cheerful arch,  
 And paint the sunset valley!  
 How redly buds the larch!  
 Blackbirds are singing,  
 Clear hylar ringing,  
 Over the meadows the frogs proclaim  
 The coming of spring to boy and dame.

—W. E. CHANNING



This fine oak tree grows on the farm of Mr. William Barber, in Exeter. It is nearly six feet through the trunk at the base and its broad limbs support a wide platform which is used by the owner for a summer parlor. The main trunk divides about twelve feet from the ground into five great limbs; one of these is nearly horizontal and supports the platform. The other branches form a great symmetrical dome. It is one of the finest trees in the state.

## A TREE GARDEN.

By MR. ERNEST K. THOMAS, Rhode Island State College.

Give fools their gold and knaves their power;  
 Let Fortune's bubbles rise or fall;  
 Who sows a field or trains a flower,  
 Or grows a tree, is more than all.

—WHITTIER

Nearly all boys and girls are familiar with flower or vegetable gardens; many of you have seen a fruit garden or orchard, but a tree garden, a place where ornamental and forest trees are raised from seed, is comparatively a rare sight. There is no reason why it should be, and the writer would suggest that boys and girls, especially in the rural districts, consult their teachers regarding the raising of trees from seed in or near the school yard.

Where do the trees come from which are planted on Arbor Day at your school? How much do they cost? Do they grow after they are planted?

On Arbor Day last year the writer visited a country school and found the boys and girls busy planting a large chestnut tree which had been taken up from the woods. The tree had been removed without any care, all the little fine fibrous roots were torn away, and nothing remained but the thick hard roots which had been chopped off just a few inches below the soil. Of course the tree died, and Arbor Day to those boys and girls meant just the opposite of what it was intended it should be. It was the destruction of a beautiful tree which, if allowed to remain in the woods, might have grown into a handsome specimen, its leaves annually performing the work of assimilating food, and purifying the atmosphere; and the panicles of white flowers adding beauty to the landscape in June and July as they opened to receive visits from the bees which came to them in search of pollen and nectar; and finally, after a long, useful life, when the tree had grown to large dimensions, it might have been cut down and the wood put to some useful purpose.

Now if Arbor Day really means anything to us, we should know something about the life of a tree and how it lives. There is no way in which we can learn more than by first hand experience with them. Arbor Day means a day in which thousands of people, boys and girls as well as men and women, should take some part in the planting of trees. To buy a tree from a nurseryman and have some one else do all the work of planting, with the exception of putting on the last few spadefuls of soil, does not inspire one with the true spirit and interest in the ceremony which its importance demands. How much more interesting it would be for the boys and girls to set out on Arbor Day trees which they had raised from seed themselves!

## A SUGGESTION

In order to make Arbor Day one of the most significant in the school life of the child, and to give him a fundamental knowledge of trees, their growth and care, which will result in a fuller appreciation of their value, the writer respectfully makes the following suggestion to teachers and others interested in this annual festival.

One. Wherever possible tree seeds should be collected in the late spring and fall and planted in the school yard at once, or stored in damp sand until spring; whether the seeds should be planted or stored depends upon the variety.

Two. This work should be done preferably by pupils in the fifth grades; the grade that collected and planted the seeds to do all work in connection with the tree garden until they are graduated; at that time, that is, three years after planting the seed, the trees will be of a suitable size for planting out in permanent quarters.

Three. Each graduate should take some active part in setting out a tree, the seed of which he collected and planted when in the fifth grade, and cared for until the time of his graduation. What an inspiration for good work this would be! What a bond of sympathy would be established between the school and the home, and the boy and girl! And not least, what an appreciation of trees in general the individual will possess on account of the knowledge he has of them, and especially of "his graduation tree."

Four. The fifth grades should make collections for planting each year. A record should be kept of all varieties raised. Efforts to secure new or rare trees suitable for the locality should be made by means of exchange of seeds with schools in some other locality.

Five. Careful records should be kept by the pupils relating to methods of storing seed, depth planted, time to germinate, sketch of seed and seedling, yearly growth, etc.

Six. A change might be made in the date of Arbor Day in Rhode Island, selecting an earlier date, more suitable to the transplanting of trees.

#### HOW TO BEGIN. COLLECTING THE SEEDS

As many of our trees ripen their seeds in the fall, the work of starting a tree garden should be thought of soon after school opens in September. There are a few trees, such as the soft maple, elm, poplars, cottonwood and willows, that ripen their seeds in the late spring or early summer. They should be planted immediately. If allowed to become dry their vitality will be impaired. These seeds will germinate in a short time. To collect seeds several paper bags should be taken along and the different varieties kept separate. If you do not know what the tree is, then save a few of the seeds, by means of which the name of the tree may often be determined.

Such seeds as hickory nuts, acorns and locust seeds, may be picked up from under the trees when they fall. The smaller seeds, such as maples, ash and elm, should be picked from the trees, if possible, as some of the seeds which fall first are often sterile.

It will facilitate the collecting of seeds which are to be picked up from the ground if the rubbish underneath the trees is raked up before the seeds begin to fall. All seeds collected should be ripe, otherwise they will not keep well.

Evergreen trees or conifers are a little difficult to raise from seed. It requires some experience to carry the young seedlings over the first year. For that reason it is best to confine the school tree garden to the common broad leaf trees which can be grown very easily from seed. Sometimes tree seeds, such as the red elm, thorn apple, and lindens, remain in the soil for one year before germinating.

#### STORING THE SEED

As many of the trees ripen their seeds in the fall, they cannot grow until the following spring. Some of them, such as the acorns, when they fall to the ground do germinate, but very few, if any, of the acorns which germinate on the ground beneath the trees live through the winter, unless they happen to be protected by a layer of leaves.

It becomes necessary, therefore, to store the seeds of such trees until spring. If tree seeds are kept in a dry room they will shrivel up, and the outer covering of the seed will



become so hard that the germ inside, even if it retained sufficient vitality to grow, will not be able to push its way through the hard seed coats.

Tree seeds must be stored in a manner which will keep the outer covering in a moist condition, or even disintegrate it to a certain extent, thus making it easy for the tender root to push out in the spring when the seed is placed under suitable conditions for germination.

As a general rule all tree seeds which ripen in the fall should be "stratified," that is, placed in a wooden box or some other receptacle, in layers, alternately with moist sand. The box is then buried in some well drained place out of doors, or stored in a dry cool cellar.

Dry seeds like ash and maple will stand more drying than some others. They should be stratified as directed above and stored in a dry cool cellar.

Seeds like cherry, hawthorn, and plum, should have their fleshy covering removed before placing them between the layers of sand. The box should be placed outside where the seeds will freeze. This will help in opening the hard seed coats and insure easy germination in the spring. Alternate freezing and thawing of the seeds should be avoided. It may injure their vitality. Seeds stored in this way should not be taken from the box until the garden is ready for planting. If allowed to dry only for a short time in spring they may be injured.

Nut seeds, like acorns, hickory nuts, walnuts, chestnuts, hazels, etc., may be stored in the same way as fleshy seeds. As these seedlings do not transplant easily, they should, wherever possible, be planted where they are to remain permanently. Some of these seeds may be germinated in small pots or boxes in the schoolroom and when well established, planted out in permanent quarters, without disturbing the roots.

Seeds borne in pods like acacias, locust, coffee tree, and catalpa, should be stored in the same way as directed for ash and maple. It is advisable to soak the seeds of these trees in hot water, not quite boiling, for a day before planting them in spring.

While it is important to prevent seeds becoming dry through the winter, it is equally important that they should not be kept too moist. They should be examined occasionally, to determine their condition. If too moist there may be signs of molding, when they should be spread out to the air and sun for a few hours. It will be possible to detect any drying out by the shrinkage of the kernels.

#### TEST THE SEEDS BEFORE PLANTING

A few weeks before it is time to plant the seeds in early spring, examine them carefully to determine their vitality. If the kernels are withered, they may not be of much value and seeds from some other source should be obtained. The best test is to lay a few of the seeds on a moist piece of blotting paper placed in a hollow plate and covered with another plate. Place in a warm room where the temperature remains constant at about 75° to 80° F. Keep the blotting paper moist, and examine daily for two weeks or longer. When well sprouted, determine what percentage is viable. If this percentage falls below the standard given elsewhere, the seeds should not be planted but others secured, if possible, which are likely to give better results. If they have to be used, then plant them much thicker than is recommended in the table.

#### PREPARING THE SOIL FOR THE TREE GARDEN

Any soil suitable for raising vegetables and flowers will be suitable for raising trees. A well drained situation is desirable and one with a gentle slope so that the surface water will pass



away freely is preferable. As with other kinds of gardens in connection with schools there will usually be no choice of a situation, and whatever is available must be put into the best possible condition. Unlike vegetables or flowers, the young trees prefer a site not directly exposed to the full rays of the sun. A position sheltered from cold winds is also very desirable. Perhaps the best soil for raising tree seedlings is a deep, rich, sandy loam.

Plow or spade up the soil in the fall, after applying a good dressing of well decayed barnyard manure. Leave it in this condition all winter; then in the spring, as soon as the frost is out of the ground, have it spaded or plowed again. The soil should be well pulverized by raking or harrowing. Remove all stones and rubbish, after which firm the soil with a light roller to check rapid evaporation of the soil moisture, and to establish capillary connection between the surface soil and the moisture below.

### THE AREA OF THE TREE GARDEN

The area of the tree garden will depend upon the number of seeds to be planted. For the first year, a very small plot, say 10 x 30 feet, may be large enough. When the seedlings are one year old they must be transplanted carefully in order to give them sufficient room to grow properly.

### PLANTING THE SEEDS

Tree seeds should be planted as soon as the soil can be prepared in the spring. Seeds of some species which ripen in the fall, such as the basswood and yellow poplar, do not retain their vitality for many days, and should be planted as soon as they are gathered in the fall. Before a seed will germinate three things are necessary; 1, a sufficiently high temperature; 2, air; 3, moisture. To secure the first of these three essentials, do not plant the seed too early in the spring before the soil has warmed up. Tree seeds are a little more hardy than some of the early vegetable seeds, and if planted at the same time, the temperature will be about right. To secure the second condition, do not plant the seed too deeply. If planted too deep, they will get sufficient moisture, but it will be of no use to the seeds because they are unable to get enough air. On the other hand, to obtain enough moisture seeds should be covered with enough soil to hold the requisite amount of water around them. In planting seed, then, do not plant deep enough to seal them from the atmosphere, but cover them just enough to hold sufficient moisture; see table. Firm the soil down over the seed after planting. This is important. Plant the seeds in straight drills, 18 inches apart. At the end of every row place a neat stake on which the name of the species has been stamped.

### CARE OF THE TREE GARDEN

The care of the tree garden will be similar to that of a vegetable garden. Weeds must be removed before they have a chance to interfere with the growth of the seedlings. The bed should be hoed frequently to maintain a surface mulch which will conserve the soil moisture.

If the bed becomes very dry it should be watered thoroughly. A sprinkling on the surface will do more harm than good. In the fall the seedlings should be protected for the winter by covering the bed with a layer of leaves or straw to a depth of 8 or 10 inches.

## TRANSPLANTING

The following spring the seedlings will be one year old. Most of them will be ready for transplanting into rows where they will have plenty of room to develop properly. In order to provide a place for the one year old seedlings, of each grade, a systematic plan should be followed.

A	Seeds planted by the pupils of the fifth grade in the spring of 1913, 1914 and 1915.
B	One year old seedlings planted in the spring of 1914.
C	One year old seedlings planted in the spring of 1915.
D	One year old seedlings planted in the spring of 1916.

Suggestion for a school tree garden. In 1916 the one year seedlings in section B will be three years old, and ready for removal to permanent quarters. In 1917 the one year seedlings planted in the spring of 1916 should be planted in section B.

Nursery planting table for forest trees\*

No.	Species.	When to collect seeds.	How to store seeds.	Per cent which should germinate.	When to plant seeds.	Depth of plant seeds.	Spacing of seeds in rows.	Height of 1-year old seedlings.	Forest Service publication for reference.
						<i>Inches.</i>		<i>Inches.</i>	
1	Ash, Green . . . . .	October . . . . .	Bury in sand . . . . .	35-50 . . . . .	Spring . . . . .	$\frac{1}{2}$ . . . . .	Scatter thickly . . . . .	6-9 . . . . .	Circular 92.
2	Ash, White . . . . .	do. . . . .	do. . . . .	35-50 . . . . .	do. . . . .	$\frac{1}{2}$ . . . . .	do. . . . .	6-10 . . . . .	Circular 84.
3	Basswood . . . . .	September or October . . . . .	Sow at once . . . . .	5-50 . . . . .	Fall . . . . .	$\frac{1}{2}$ . . . . .	do. . . . .	6-12 . . . . .	Circular 63.
4	Beech . . . . .	Fall . . . . .	Bury in sand . . . . .	70-80 . . . . .	Early spring . . . . .	$\frac{3}{4}$ . . . . .	2 inches apart . . . . .	3-6 . . . . .	
5	Burternut <i>a</i> . . . . .	September to October . . . . .	do. . . . .	75-80 . . . . .	do. . . . .	1 . . . . .	3 to 6 inches apart . . . . .	10-18 . . . . .	
6	Boxelder . . . . .	do. . . . .	do. . . . .	40-60 . . . . .	Spring . . . . .	$\frac{1}{2}$ . . . . .	Touching in rows . . . . .	10-14 . . . . .	Circular 80.
7	Catalpa, Hardy . . . . .	October or November . . . . .	Cool, dry place . . . . .	40-75 . . . . .	do. . . . .	1 . . . . .	$\frac{1}{2}$ inch apart . . . . .	14-30 . . . . .	Circular 82.
8	Cherry, Black . . . . .	August or September . . . . .	Bury in sand . . . . .	75-80 . . . . .	do. . . . .	1 . . . . .	2 to 3 inches apart . . . . .	4-6 . . . . .	Circular 94.
9	Coffeetree, Kentucky . . . . .	September or October . . . . .	Cool, dry place, or bury in sand . . . . .	70-75 . . . . .	do. . . . .	1 . . . . .	do. . . . .	3-6 . . . . .	Circular 91.
10	Cottonwood <i>b</i> . . . . .	June or July . . . . .	Sow at once . . . . .	75-95 . . . . .	Summer . . . . .	$\frac{1}{2}$ . . . . .	1 inch apart . . . . .	20-30 . . . . .	Circular 77.
11	Elm, Slippery . . . . .	May or June . . . . .	do. . . . .	50-75 . . . . .	Late spring . . . . .	$\frac{1}{2}$ . . . . .	Scatter thickly . . . . .	15-18 . . . . .	Circular 85.
12	Elm, White . . . . .	do. . . . .	do. . . . .	50-75 . . . . .	do. . . . .	$\frac{1}{2}$ . . . . .	do. . . . .	5-10 . . . . .	Circular 66.
13	Hackberry . . . . .	October . . . . .	Bury in sand . . . . .	70-80 . . . . .	Spring . . . . .	$\frac{1}{2}$ . . . . .	1 to 2 inches apart . . . . .	6-12 . . . . .	Circular 75.
14	Hickory, Pignut <i>a</i> . . . . .	September or October . . . . .	do. . . . .	50-75 . . . . .	do. . . . .	1-2 . . . . .	3 to 6 inches apart . . . . .	2-6 . . . . .	Silvical leaf-let 48.
15	Hickory, Shagbark <i>a</i> . . . . .	do. . . . .	do. . . . .	50-75 . . . . .	do. . . . .	1-2 . . . . .	do. . . . .	2-6 . . . . .	Circular 62.
16	Hickory, Shellbark . . . . .	do. . . . .	do. . . . .	50-75 . . . . .	do. . . . .	1-2 . . . . .	do. . . . .	2-6 . . . . .	Silvical leaf-let 50.
17	Locust, Black . . . . .	October . . . . .	Cool, dry place, or bury in sand . . . . .	50-75 . . . . .	do. . . . .	1 . . . . .	2 to 3 inches apart . . . . .	18-20 . . . . .	Circular 64.
18	Locust, Honey . . . . .	do. . . . .	do. . . . .	50-75 . . . . .	Fall or spring . . . . .	$\frac{1}{2}$ . . . . .	do. . . . .	6-14 . . . . .	Circular 74.
19	Maple, Red . . . . .	May or June . . . . .	Sow at once . . . . .	25-60 . . . . .	Late spring . . . . .	1 . . . . .	$\frac{1}{2}$ inch apart . . . . .	6-10 . . . . .	
20	Maple, Silver . . . . .	do. . . . .	do. . . . .	25-50 . . . . .	do. . . . .	1 . . . . .	do. . . . .	12-20 . . . . .	Circular 76.
21	Maple, Sugar . . . . .	October . . . . .	Sow at once or bury in sand . . . . .	30-50 . . . . .	Fall or spring . . . . .	1 . . . . .	do. . . . .	6-12 . . . . .	Circular 95.
22	Mulberry, Russian . . . . .	July or August . . . . .	Cool, dry place . . . . .	75-95 . . . . .	Spring . . . . .	$\frac{1}{2}$ . . . . .	Scatter thickly . . . . .	8-10 . . . . .	Circular 85.
23	Oak, Bur <i>a</i> . . . . .	September or October . . . . .	Sow at once or bury in sand . . . . .	75-95 . . . . .	Fall or spring . . . . .	1-2 . . . . .	3 to 6 inches apart . . . . .	5-9 . . . . .	Circular 56.
24	Oak, Red <i>a</i> . . . . .	do. . . . .	do. . . . .	75-95 . . . . .	do. . . . .	$\frac{1}{2}$ . . . . .	do. . . . .	6-20 . . . . .	Circular 58.
25	Oak, White <i>a</i> . . . . .	do. . . . .	do. . . . .	75-95 . . . . .	do. . . . .	$\frac{1}{2}$ . . . . .	do. . . . .	5-9 . . . . .	Circular 106.
26	Osage, Orange . . . . .	do. . . . .	Cool, dry place . . . . .	60-95 . . . . .	Spring . . . . .	$\frac{1}{2}$ . . . . .	1 inch apart . . . . .	10-15 . . . . .	Circular 90.
27	Poplar, Yellow . . . . .	do. . . . .	Sow at once . . . . .	5-10 . . . . .	Fall . . . . .	$\frac{1}{4}$ . . . . .	Scatter thickly . . . . .	4-6 . . . . .	Circular 93.
28	Walnut, Black <i>a</i> . . . . .	do. . . . .	Bury in sand . . . . .	75-80 . . . . .	Spring . . . . .	$\frac{1}{2}$ . . . . .	3 to 6 inches apart . . . . .	10-18 . . . . .	Circular 88.

*a* Difficult to transplant on account of tap root. Advisable to sow seeds in permanent sites in field whenever possible.

*b* Easily grown from cuttings. Not necessary or advisable to attempt growing from seed.

\*From Farmers' Bulletin, 423 U. S. Dept. of Agriculture.

The soil for the one year old plants should be prepared in the same way as directed for the seed bed.

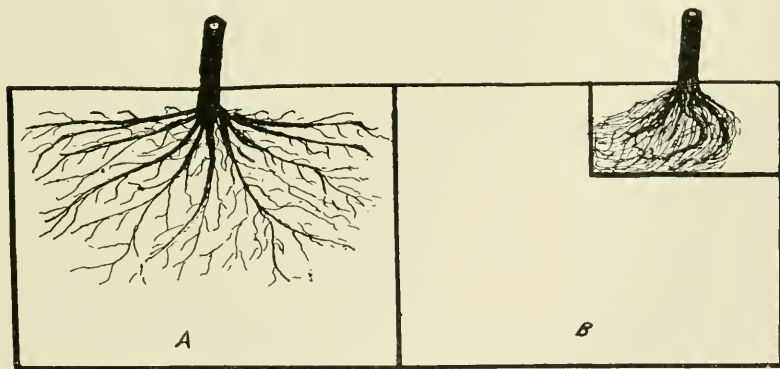
Great care should be taken to lift the young trees without injuring the roots. It can be done by forcing the blade of a spade into the soil, 8 or 10 inches away from the seedlings, first on one side of the row, then force the spade into the soil on the other, and press the handle downwards. This will lift the young trees with a ball of soil out of the ground. The earth may then be carefully removed and the seedlings placed in a pail of water to keep the roots moist, or they may be placed thickly together in a shallow trench with a few inches of soil over the roots until ready to be set out. If the roots are exposed to the wind and sun, even for a short time, they are likely to be injured. A cloudy, calm day is preferable for transplanting.

Some of the seedlings will be found to have a long tap root, that is, there will be one main root running in a downward direction. It is a good plan to shorten this about one third of its length before replanting. By so doing a number of smaller roots will start above the cut, and the tree will make a more symmetrical growth.

If any of the roots are bruised or broken when removing trees from the soil, they should be cut off with a sharp knife just above the injury. The top or crown of the tree should also be cut correspondingly. Failure to reduce the top when transplanting is responsible for the death of many trees. When a tree or any other plant is removed from the soil, a very large quantity of the roots is broken off, even with the greatest care. If the tree is set out with the same amount of top growth, and with from one to two thirds of the root system removed, then the limited root system cannot supply the top with food. The leaves will evaporate more moisture than the roots can supply, with the result that the tree is very much injured and often dies.

The young trees should be set out in straight rows, two to three feet apart, and ten to twelve inches between the plants. This will leave plenty of room for cultivation between the rows.

Set the trees two to three inches deeper in the soil than they were before. Extend the roots in their natural position, and firm the soil down over them. If the soil is at all heavy, do not pack it so firmly as to prevent the air from entering.



Right and wrong methods of planting trees. A. The right way, roots carefully spread out in their natural position. B. The wrong way, roots all cramped together in an unnatural manner. Hole too small.

Transplanting should be done early in the spring, as soon as the frost is out of the ground. If for any reason it becomes necessary to plant trees late in spring after the leaves have started, the top should be cut back severely and most of the foliage removed to check evaporation until the roots have a chance to take hold of the new soil.

#### CARE OF THE TREE GARDEN

After the trees are transplanted, the care of the tree garden is similar to that of any other garden. Frequent hoeings, to keep down weeds and to conserve the soil moisture, are necessary. The soil should not be trampled down any more than is absolutely necessary. If the pupils are allowed to run over it during recess, it will become hard, dry out readily, and in a dry period the trees are likely to suffer.

#### DISPOSING OF THE TREES

In two years time, if the trees have been well cared for, they will be ready for setting out in their permanent quarters. Some of them may be planted around the schoolhouse, others may be given to the pupils to plant at home, or, in some communities, where a large number of trees has been raised, a most valuable lesson in forestry may be taught by setting out the trees on a barren tract of land from which the timber has been removed.

Whenever trees are to be sent away from the garden, the roots should be wrapped up carefully in damp moss to prevent drying out.

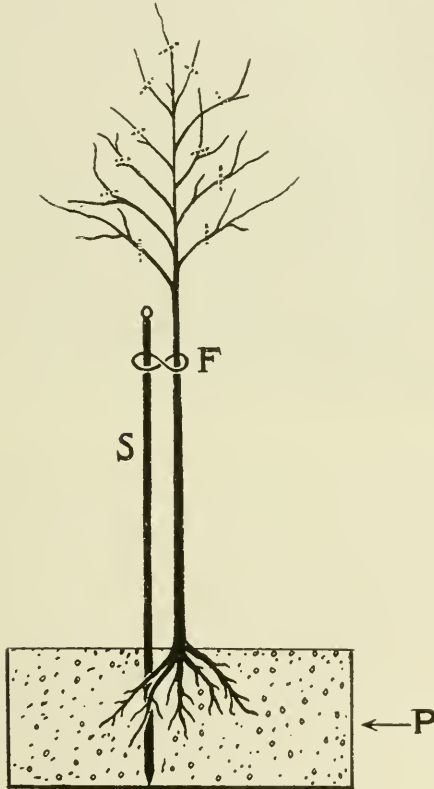


A Rhode Island Grove of Chestnut Trees near Kingston



## HOW TO PLANT SHADE TREES

Although forestry is not much related to the æsthetic work of tree wardens, yet the frequent requests for information relative to the care of shade trees induces the writer to print the following comments, based upon his study and experience in one branch of the subject, namely, the factors governing success in the transplanting of trees. While there is room for difference of opinion on this topic, it will be generally conceded that one tree well planted is worth more than two planted poorly.



*Diagram of Tree*

*P = Tree Pit 6'x5'x2½' deep*

*S = Stake; F = Fastening*

*.... = Pruning for Transplanting*

Many trees are destined before planting to an early death through lack of precautions in their digging and transit. Removing a tree from its original site and planting it in a new place is a surgical operation requiring a knowledge of plant physiology. To grub out trees and plant them in small dry holes invites wholesale failure. Of a lot of vigorous trees suitably planted, nearly every one should live and thrive.

In digging trees care is required to preserve a large number of the tender root-tips and fine rootlets which supply the water and mineral food. A small tree—an inch or two in diameter—growing near the place of transplanting, may be lifted with a ball of earth in which the root system is imbedded, wrapped in burlap, and carried to the pit prepared for it. To secure shade without loss of time, trees six or more inches in diameter are sometimes transplanted with full ball of earth, —an expensive operation requiring special appliances. Trees sent out by nurseries are usually lifted without balls of earth and skilfully packed for long-distance shipment. Upon arrival from the nursery, unpack the trees and set them in small trenches in a shady place, covering the roots with moist earth. Trees dry and hot when received are not likely to live, but some species will stand more maltreatment than others.

Wild seedlings from the fields and woods may be used, but nursery stock is preferred. When ready to begin work, remove the trenches, cover the roots with moist straw or burlap and carry them to the tree pits and plant. At no time must the roots be much exposed to the sun and wind.

The cost of planting varies with the size of tree, soil, and site. The Beacon Street planting in Boston, recently done successfully under the direction of a landscape architect.

cost \$50 a tree. This work involved the planting of 150 European Lindens, 2½ inches in diameter, a system of sub-irrigation by means of Akron pipes laid with open joints among the roots, the digging of tree pits 12 feet long, 4½ feet wide and 3 feet deep, the removal of the excavated material, the filling of each pit with 4 cubic yards of rich loam, relaying the sidewalk, tree guards, and maintenance for two years. In country and suburban districts and in favorable city locations the cost would be much less than the above named figures.

Street trees are usually spaced 30 to 50 feet, according to species; 40 feet is a good distance; large trees like oak, elm, sycamore, and black walnut, require wide spacing—50 to 70 feet. Where trees and shrubs of varying foliage and tolerance of shade are mixed in groups for landscape effects, the spacing is closer—often 5 to 20 feet.

The hole should be dug wider and deeper than seems necessary—perhaps 2 to 3 feet deep with an area of about 30 square feet for two-inch trees, in order that the growing roots may have a sufficient amount of loose rich soil. If the soil from the pit is not good, it should be replaced with rich loam or forest humus free from sticks and stones. The tree should be planted to the same depth at which it stood in its original site, or perhaps an inch or two deeper if set in light porous soil; the root collar indicates the right depth. Fill in the center of the hole with earth to the height at which the tree is to stand; then place the tree on this slight elevation and spread out the roots in a natural manner. While an assistant is covering the roots with the first thin layer of soil, the tree may be moved up and down within the space of an inch, in order to firm it in place and to bring the soil into close contact with the roots; then as the hole is gradually filled, the soil is pressed down carefully but firmly to prevent drying out, the last shovelful being thrown loosely over the surface. A heavy man with large feet makes a good planter. Water is useless, except in dry loose ground.

Before planting, any broken and bruised roots should be removed with a sharp knife, the face of the cut being made on the under side of the root. The loss of roots must be balanced by a pruning of the top in which crooked branches are removed and spindling twigs shortened. A straight and vigorous leader uncut gives the tree a long conical crown; if cut, a short compact crown. The bean-pole style of planting without any top is not advisable except in special cases where the root structure has sustained much injury; since rapidity of growth depends on leaf surface, topping is a serious set-back, but good sprouters like willows and poplars will survive such mutilation, and these short-lived trees are recommended for planting where rapidity of growth and shade are the chief considerations.

A thin mulch of leaves or litter mixed with fertilizer will keep the ground cool and free from weeds which would transpire the moisture needed by the young tree. A stake driven into the ground and fastened to the tree by a twine inclosed in a piece of rubber tubing prevents wind-throw. The market affords various kinds of tree-guards against injury by animals. Young beeches, maples, horse-chestnuts and others subject to sun-scald are protected by neighboring shade or by lattice south of the trees. Planting may be done at any time, but from April 1st to May 10th is the most favorable season in Rhode Island.

The choice of species is a large topic, but it may be said that adaptability is essential. Sidewalks require clean, hardy, symmetrical, long-lived species of moderate size like Red Maple, Norway Maple, Hackberry, and Ironwood. Wide avenues admit the more majestic trees, like the Oaks, Basswood, Tulip, Chestnut, Rock Maple, and Liquidambar. Uniformity of spacing and species is effective in a street. On lawns, variety of species lends accent to diversity of topography, and charm through the countless tints of bud, leaf, and flower in springtime, and the fine array of brilliant foliage in autumn. For dense shade, use beech and maple; for thin shade, ash.

For further information about the care of trees after planting, consult *Fernow's Care of Trees* and *Des Cars' Tree Pruning*.

J. B. MOWRY, *Commissioner of Forestry*



Trees are a great addition to the value of property for residence purposes.

## THE MONTHS

## JANUARY

One night came winter noiselessly and leaped  
 Against my window-pane,  
 In the deep stillness of his heart convened  
 The ghosts of all his slain.

—C. G. D. ROBERTS

## FEBRUARY

An icy hand is on the land;  
 The cloudy sky is sad and gray;  
 Now comes the gray-beard of the moth,  
 The forests bare their rugged breasts  
 To every wind that wanders forth,  
 And in their arms, the lonely nests  
 That housed the birdlings months ago  
 Are egged with flakes of drifted snow.

—H. ABBEY

## MARCH

Worn is the winter rug of white,  
 And in the snow-bare spots once more,  
 Glimpses of faint green grass in sight,—  
 Spring's footprints on the floor.

—FRANK DEMPSTER SHERMAN

## APRIL

Again has come the spring time,  
 With the crocus' golden bloom,  
 With the smell of fresh-turned earth-mould,  
 And the violet's perfume.

—SAMUEL LONGFELLOW

## MAY

The birds around me hopped and played,  
 Their thoughts I cannot measure,  
 But the least motion which they made,  
 It seemed a thrill of pleasure.  
 The budding twigs spread out their fan,  
 To catch the breezy air;  
 And I must think, do all I can,  
 That there was pleasure there.

—WORDSWORTH

## JUNE

In early June, when earth laughs out,  
 When the fresh winds make love to flowers,  
 And woodlands sing and waters shout,  
 When in the grass sweet voices talk,  
 And strains of tiny music swell  
 From every moss-cup of the rock,  
 From every nameless blossom's bell.

—BRYANT

## JULY\*

Now summer finds her perfect prime!  
 Sweet blows the wind from western calms;  
 On every bower red roses climb;  
 The meadows sleep in mingled balms.

—EDNA DEAN PROCTOR

## AUGUST

The locust by the wall,  
 Stabs the noon silence with his sharp alarm,  
 A single haycart down the dusty road  
 Creaks slowly with its driver fast asleep,  
 On the load's top.

Through the open door  
 A drowsy smell of flowers, gray heliotrope,  
 And sweet white clover and shy mignonette,  
 Comes faintly in, and silent chorus lends  
 To the pervading symphony of peace.

—WHITTIER

## SEPTEMBER

When on the breath of autumn breeze,  
 From pastures dry and brown,  
 Goes floating like an idle thought  
 The fair white thistle down,  
 Oh! then what joy to walk at will  
 Upon the harvest hill!  
 Oh! golden fields of bending corn  
 How beautiful they seem;  
 The reaper-folk, the piled-up sheaves,  
 To me are like a dream.

—MARY HOWITT



## OCTOBER

Season of mists and mellow fruitfulness,  
 Close bosom-friend of the maturing sun;  
 Conspiring with him how to load and bless  
   With fruit the vines that round the thatch-eves run;  
 To bend with apples the moss'd cottage-trees,  
   And fill all fruit with ripeness to the core:  
 To swell the ground, and plump the hazel shells  
   With a sweet kernel; to set budding more,  
 And still more, later flowers for the bees  
 Until they think warm days will never cease,  
   For summer has o'er-brimmed their clammy cells.

—KEATS

## NOVEMBER

The withered tufts of asters nod,  
   And trembles on its arid stalk  
 The hoar plume of the golden rod;  
   And on a ground of somber fir  
 And azure studded Juniper  
   The silver birch its buds of purple shows,  
   And scarlet berries tell where bloomed the sweet wild rose.

—WHITTIER

## DECEMBER

When the feud of hot and cold  
   Leaves the autumn woodlands bare,  
 When the year is getting old,  
   And flowers are dead, and keen the air,  
 When the sun's still shortening arc  
   Too soon night's shadows dim and gray  
 Brings on, and fields are drear and dark,  
   And summer birds have flown away,  
 I feel the year's slow beating heart,  
   The sky's chill prophecy I know  
 And welcome the consummate art  
   Which weaves this spotless shroud of snow.

—JOEL BENTON

The mortal who has never enjoyed a speaking acquaintance with some individual tree is to be pitied; for such an acquaintance once established naturally ripens into a friendliness that brings serene comfort to the human heart, whatever the heart of the tree may or may not experience.

—ANNA BOOTSFOOT COMSTOCK

**"THE BOY AND THE BUSH-LOT."**

In 1882 John's uncle returned from travel in Europe, and came to visit the place of his birth among the hills of southern New York. There, on the veranda, the brothers talked of land and tillage, and finally of the woods; and the uncle told of the painstaking nurture and final values of the German forests. He pointed to the eight-acre bush-lot on the hillside opposite. "They would look on that as a crop," he said, "to be cleaned and cultivated with your other acres, and made to yield a steady net income."

When the uncle had gone to his treeless home in the West, the father and son went about the autumn work, but they found themselves looking at the many-colored bush-lot with a new interest.

One evening they sat gazing across at it. "I'll deed you that eight acres when you come of age," said the father, "if you care to try any of those new German methods. Starting now at twelve, you can watch it a long way, if all goes well and you keep the old place, as I hope you will. But work it out yourself. I've worn months off life hacking at that piece."

Three days later the boy, with a new two-pound ax, entered his domain. The lot bore a growth varying from briars and fireweed to sprout-weed thirty feet high and five inches through. John knew vaguely that oak, chestnut, pine, ash, hickory and locust were woods to respect, and he began to cut, cautiously, the fire-cherry, poplar, shadblow, ironwood, water-beech, sumac, boxwood, alder and spotted maple. Certain trees kept him in indecision,—red maple, beech, black cherry, yellow and black birch, basswood,—and he usually ended by leaving them.

At the end of the week the father remarked, "Well, we've heard a good deal of picking up there, but we don't notice any change in the scenery."

"Come up with me," said John, "and bring the team."

The father was astonished at the quantity of pole wood lying, well trimmed and piled, on the few square rods gone over. He was keenly interested, and the next week sent the hired man, with instructions to cut as the boy directed.

Two weeks remained before school opened, and they proved memorable ones for John. The first personal responsibility, the increasing strength and precision of the ax-strokes which he could himself see and take pride in, added new interest to the work and new strength to his character.

At odd times through the winter, and again in the spring, the cutting went on. Over a year's supply of good fire-wood and a few stakes and fence-posts came from the first three acres. The neighbors wondered, or smiled, or giped; and the boy, feeling the mental loneliness of an inventor or a pioneer, often doubted and wondered, too, and avoided observation and discussion.

"Better not fool with Nature—on her own ground," they said; and he had little to offer in reply save the strange insistence of a new-formed habit—the habit of thinking and acting at all spare times on that ragged eight acres. There he first felt the clutch and tyranny of a thing begun—the spur that makes it easier to go on than to wait or to retreat.

Two more seasons completed the cutting. Adjoining the lot was another that had started at the same time and under like conditions. For a few years it was remarked that the neighbor's unthinned plot looked the better. The boy went away to school; other interests filled his life. At home during his vacation, he turned to his hillside, impelled by certain nature studies and readings of his school course. He was surprised at the changes

—open places closed, lower boughs falling, trees again crowding and reaching, growing crooked and dying—the silent, years’-long wasteful struggle for final dominion by the few.

Seven years before but one idea had guided—that of species selection. This he now saw had resulted in mistakes in many places, where the forest was yet too thick or too thin. Another principle was now grasped: the decaying, the dying, the overcrowding, the submerged, the crooked—even of the best kinds—must come out.

Grinding the old ax, John marked in two days the trees to be removed. These were cut at spare times by the hired man. Two years’ wood resulted, together with posts, fence stuff and small timber, usable in various ways about the place.

On his twenty-first birthday there came to John, in a distant city, the deed of the eight acres. Busy years followed, and the ownership and the cutting experiment were at times almost forgotten. In the early autumn of 1898 he went, after long absence, to close up matters at the old home. His father had died; the place was to be sold at public auction. On entering the valley, the hillside lot at once attracted his attention. He hardly recognized it. It was a forest—a wood-lot, standing clear and even above the adjoining timber.

Walking through it later, he saw the faint ax-marks of that first consistent effort and rush of memories came. There was a definite product, a result of having lived, and indisputable betterment of a little part of the earth—and without taking anything away from any other human being. He could think of nothing else like it in his life so far. The old desire to “see it through” came back. He went down and “bid in” the farm.

A wife and two children went with him there for vacation the next summer, and thrived. Many local telephone lines were being put through, and John’s wood-lot supplied three hundred chestnut poles, only those being cut that were crowded, or doomed to succumb. That year he marked again the entire plot for the removal of fire-wood, locust posts, small repair timber, and so forth.

John’s timber-lot is now the show-piece of the township. The trees, unusually tall and straight, are almost wholly of the best woods. Their value is increasing rapidly, and with proper cuttings—each yielding revenue—this increase will go on for years. Rough calculation reveals that the plot has already more than paid taxes and good interest with its product of wood and small timber.

“Waiting for timber to grow” is the lumberman’s standing joke. It is based on a certain sanity, for the time required, especially from planting, is somewhat appalling.

But the boy and the bush-lot can win, even against time—the bush with fifteen years’ start, and the boy with fifty years or more to go. And the best of the winning will be quite other than the income by the way, or the unexpectedly large value at the end.

YOUTH’S COMPANION.

“I feel at home with every thing  
That has its dwelling in the wood;  
With flowers that laugh, and birds that sing;  
Companions beautiful and good,  
Brothers and sisters everywhere;  
And over all our father’s care.

“And when the bare rocks shut me in  
Where not a blade of grass will grow,  
My happy fancies soon begin  
To warble music, rich and low,  
And paint what eyes could never see;  
My thoughts are company for me.”

## ARBOR DAY LONG AGO

In the fifth century the people of a little village in Switzerland decided that they wished to have an oak grove on their common, so they set aside a day for the planting of acorns. On the appointed day the people came, each carrying his bag of acorns. These were planted, but for some reason they did not grow. The following year the people again assembled, and again planted acorns, but with the same result. The people were not to be discouraged in their efforts, however, for another day was set and they marched to the forest, each got a tree and brought it back for the planting. After the saplings were planted the people enjoyed a feast together.

The trees were cared for by the people, each one voluntarily doing his share under the direction of a gardener. In the course of years a fine grove, which furnished the citizens and their descendants a place of recreation, rest, and shade, was the result. For years the anniversary of this tree planting was observed by the people of Brugg with appropriate exercises, at the close of which event rolls or other eatables were distributed. It is said that a similar festival still exists in this and other Swiss villages. This seems to be the first recorded effort at organized tree planting. This custom instituted so long ago finds a happy revival in our modern Arbor Day exercises.

When our use of this world is over and we make room for others, may we not leave anything ravished by our greed or spoiled by our ignorance, but may we hand on our common heritage fairer and sweeter through our use of it, undiminished in fertility and joy.

—RAUSCHENBUSCH



A Group of Oaks



## REJOICE IN THE SPRINGTIME

H. TUPPER

1. When the breath of the Spring-time per-vades the air, Set-ting  
 2. When the earth slow-ly hides in its car-pet green, All .

CHO. Then re-joice in the Spring-time of sun and rain, At-

grass-es and leaves a-stir, . When the im-pulse of grow-ing is  
 dot-ted with blos-soms rare; . When the trees fling a-bout them their  
 tuned may our pul-ses be; . May the earth as it mur-murs its

ev-ry-where, Then the won-ders sub-lime oc-cur; . All Na-ture with  
 ver-dant sheen And mel-o-dy fills the air, . May the sor-rows that  
 glad re-frain Be a Beth-el for you and me. .

ten-der-est mu-sic teems, With an-thems by for-ests and brook, The  
 grieve us, the cares that bend, All van-ish like Win-ter's snow, And our

birds, re-a-wak-ened from Southland dreams. Now return to their nest-ing nook.  
 blos-soms of joy-ous-ness then as-cend, Keep-ing all of our hearts a-glow.

D.C. CHORUS



## THE FIRST VIOLETS

A. H. BRANCH

BELLINI

1. It's a beau - ti - ful day to be glad in; The vi - o - lets bud - ded to -  
 2. There's a fresh - ness of dew on the grass-es, An in - stinct of green in the  
 3. It's hap - py, it's hap - py, its hap - py; The world has a flush of sur -

day. And I found the first dear lit - tle prim-rose, Looking up from the grass by the  
 trees, And there's such a sweet tremble and quiv-er, An im - pulse of life in the  
 prise, Like a ba - by that just has a - wakened With a won - der of tho't in its

way. Way up in the boughs of the elm tree The nest of the o - ri - ole swings, And a  
 breeze. I'm look - ing for something, I know not What this that I look for may be, There is  
 eyes. The first lit - tle primrose has bud - ded, It shines from the green in the way, It's a

bird is a - flit in the ma - ple With a quiv - er of blue in his wings.  
 just a vague joy of wait - ing, For some - thing that's go - ing to be.  
 beau - ti - ful day to be glad in, The vi - o - lets bud - ded to - day.

# THE GRAND OLD TREES.

Journal of Education.

GEORGE T. GOLDTHWAITE.

1. We love the grand old trees, With the oak, their roy - ai  
 2. We love the grand old trees, The ce - dar bright a - bove the  
 3. We love the grand old trees, The tu - tip branch - ing broad and

king, The ma - ple, for - est queen, We to her our hom - age bring.  
 snow, The pop - lar straight and tall, And the wil - low weep - ing low.  
 high, The beach with shin - ing robe, And the birch so sweet and shy.

And the elm with state - ly form, Long with - stand - ing wind and storm, The  
 But - ter - nut and wal - nut too, Hick - o - ry, so staunch and true, The  
 A - ged chest - nuts, fair to see, Hol - ly bright with Christmas glee, And

pine, low whis - p'ring to the breeze, We love the grand old trees!  
 bass - wood bloom - ing for the bees, We love the grand old trees!  
 lau - rel crown for vic - to - ries, We love the grand old trees!

NOTE: The Bass may be omitted.

## PLANTING

EDWARD DREIER

CAROLINE B. BOURGARD. Adapted

1. Ev - 'ry seed so small and ti - ny, Plant - ed in its  
2. God will send the rain and sun - shine, Make the gen - tle

earth - y bed, Takes its rest un - til the spring - time,  
breez - es blow, Our task to do the plant - ing,

Wak - ing, lifts its lit - tle head; Grows in - to a love - ly flow - er,  
His to make the seed - lets grow; Ma - ny lit - tle deeds of kind - ness

Crowned with blos - soms, sweet and fair, Or a tree with  
We can sow a - long the way, Ev - er plant - ing,

might - y branch - es Reach - ing high in - to the air.  
ev - er sow - ing, Ev - 'ry day an Ar - bor Day.

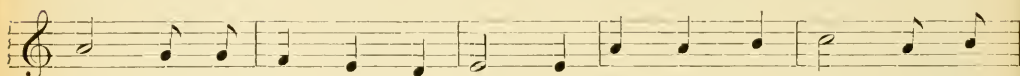
## THE TREE.

B. BJÖRNSON.

EMORY P. RUSSELL.



1. The Tree's ear - ly leaf - buds were burst - ing their brown, "Shall I take them a -
2. The Tree bore the blos - soms and all the birds sung; "Shall I take them a -
3. The Tree bore his fruit in the mid - sum - mer glow;— Said the girl, "May I



way?" said the frost sweep - ing down. "No, leave them a - lone, till the  
 way?" said the wind as he swung. "No, leave them a - lone, till the  
 gath - er thy sweet ber - ries now?" "Yes, all thou canst see, take them,



blos - soms have grown," Prayed the Tree, while he trem - bled from root - let to crown.  
 ber - ries have grown," Said the Tree, while his leaf - lets all quiv - er - ing hung.  
 all are for thee," Said the Tree, while he bent down his la - den boughs low.

## THE TREE'S DREAM

Little green tree so slim and small,  
 Standing under the schoolhouse wall,  
 Planted there upon Arbor Day,  
 Tell me, what are you doing, say?  
 So quiet you stand, and so still you keep,  
 I really believe you have gone to sleep.

"Oh! I'm dreaming now," said the little tree,  
 "Of pleasant days that are to be,  
 Of the robins and bluebirds that every spring  
 Will come and sit in my boughs and sing.  
 Oh! plenty of company I shall see  
 In my gay green tent," said the little tree.

"I'm dreaming of all the little girls,  
 In gingham aprons and yellow curls,  
 That under the shade of my leafy boughs  
 Will make for themselves a wee play-house,  
 With nice bur-baskets, the dear, little souls,  
 And pepper-pod teapots and sugar bowls.

"I'm dreaming of all the barefoot boys  
 That will fill my branches with merry noise,  
 And climb my limbs like an easy stair,  
 And shake down my nuts till the boughs are bare.  
 Oh! a jolly good comrade I shall be  
 When I grow up!" said the little tree.

—ELIZABETH H. THOMAS







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